

WHAT IS CLAIMED IS:

- 1 1. A needle biopsy system, comprising:
2 a sampling portion locatable inside the body and including a stylet having a
3 sampling region and a cannula, the stylet and cannula relatively moveable along the stylet
4 axis to position the cannula over the sampling region, and
5 a sample marker locatable in and releasable from the sampling portion.
- 1 2. The system of claim 1 wherein the sample marker is locatable between the
2 stylet and the cannula.
- 1 3. The system of claim 1 including a marker lumen between the stylet and
2 cannula.
- 1 4. The system of claim 3 including a supply of multiple markers in the lumen.
- 1 5. The system of claim 4 wherein the markers in the supply are arranged
2 sequentially and generally parallel to the stylet.
- 1 6. The system of claim 2 wherein said supply of markers is provided radially
2 around said stylet.
- 1 7. The system of claim 6 wherein the supply of markers is rotatable relative to
2 the stylet axis.
- 1 8. The system of claim 3 including a marker exit opening adjacent the distal end
2 of the stylet.
- 1 9. The system of claim 8 wherein the stylet includes a side notch and the exit
2 opening is distal of the side notch.

- 1 10. The system of claim 9 wherein the opening is oriented to eject a marker
2 substantially parallel to the stylet.
- 1 11. The system of claim 3 wherein the stylet includes a side notch and a marker
2 exit opening proximal of the side notch.
- 1 12. The system of claim 3 wherein the stylet includes a side notch and at least one
2 marker exit opening aligned with an end of the side notch.
- 1 13. The system of claim 12 wherein a first exit opening is located adjacent a first
2 axial periphery of the sampling region and a second exit opening is located adjacent the
3 second exit opening.
- 1 14. The system of claim 12 wherein the exit opening is in the cannula.
- 1 15. The system of claim 13 wherein the exit opening is in the cannula.
- 1 16. The system of claim 1 including a control handle portion, the controller
2 having a supply of markers.
- 1 17. The system of claim 1 including a marker pusher to selectively locate markers
2 in said sampling portion, the pusher being actuated from the handle portion.
- 1 18. The system of claim 16 including a marker pusher to selectively locate
2 markers in said sampling portion, the pusher being actuated from the handle portion.
- 1 19. The system of claim 1 wherein the marker is indicative of the axial length of a
2 tissue region from which a sample is taken.
- 1 20. The system of claim 19 wherein the marker includes an elongated element.

1 21. The system of claim 20 wherein the elongated element includes regions along
2 its length distinguishable by MRI, ultrasound or fluoroscopy.

1 22. The system of claim 21 wherein said distinguishable regions are spaced to
2 indicate the length of a tissue region from which a sample is taken.

1 23. The system of claim 22 wherein at least a portion of the marker is bio
2 degradable.

1 24. The system of claim 1 including a supply of markers, a given marker being
2 distinguishable by MRI, ultrasound or fluoroscopy from another marker in the supply.

1 25. The system of claim 1 wherein the marker includes a tissue engaging edge
2 that resists proximal motion of the marker when the marker is in contact with the tissue.

1 26. The system of claim 1 wherein a marker is magnetically fixed to the exterior
2 of the stylet.

1 27. The system of claim 26 wherein the marker is axially translatable by motion
2 of the cannula to release the marker.

1 28. The system of claim 27 wherein the marker is translated to a location where it
2 is magnetically repulsed from the cannula.

1 29. A method of biopsy treatment, comprising:
2 providing a needle biopsy device including a sampling portion with a stylet
3 having a sampling region and a cannula, the stylet and the cannula relatively moveable to
4 position the stylet over the sampling region,
5 inserting the stylet into a tissue mass,
6 causing relative motion between the stylet and the cannula to locate the
7 cannula over the sampling region, and

8 while removing the stylet from the tissue, delivering a marker from the
9 sampling portion into the tissue.

1 30. The method of claim 29 including:
2 inserting the stylet into the tissue mass a second time and delivering a second
3 marker into said tissue mass.

1 31. The method of claim 30 wherein the markers are distinguishable by
2 ultrasound, fluoroscopy or magnetic resonance.

1 32. The method of claim 31 comprising correlating the markers with the location
2 of the multiple tissue samples, analyzing the samples for abnormal indication, and treating a
3 portion of said tissue mass.

1 33. A method of biopsy treatment, comprising:
2 taking multiple biopsy samples from a tissue,
3 marking the location of each of said multiple samples by contemporaneously
4 with the taking of each sample, releasing a marker in the tissue mass, the marker being
5 detectable by ultrasound, x-ray, or magnetic resonance imaging,
6 analyzing the tissue samples, and
7 treating tissue corresponding to the location of at least one of the samples.

1 34. The method of claim 25 comprising:
2 analyzing the tissue samples for cancerous indication.